



Summary of the 1st FOM Meeting

Held on Tuesday 21st March 2017

Agenda (<https://indico.cern.ch/event/623750>)

- 1. Linac2 and Linac3 shutdown activities and analysis*
- 2. PSB shutdown activities and analysis*
- 3. FOM membership list*
- 4. Schedule*
- 5. AOB*

B. Mikulec chaired the meeting.

The list of presence can be found in [Annex 1](#).

1. Welcome and general news

There will be no meeting next week. During the machine restart period meetings will be held every 2 weeks.

2. Linac2 and Linac3 shutdown activities and analysis

C. Mastrostefano presented shutdown activities and the machine status for Linac2 and Linac3 ([Annex 2](#)).

For Linac2 the E0 line was removed and a larger aperture vacuum chamber was put in place of LT.BHZ25. Both interventions went OK.

Complete maintenance of the cooling system for Tanks and RFQ, which is performed every 3 years, also went as planned.

A new source, which is reconstructed from the old one, was installed. It had to be re-assembled because it developed issues during initial tests in January, most probably due to an elastomer joint. It works fine since 15 Feb. The old one is kept as a spare.

Question from **B. Mikulec**: What is the delivered beam current?

Answer from **R. Scrivens**: 250 mA at the moment. Compared with the old one, at 250 mA this one has more gas content and less arc current. There is eventually potential for extracting more current.



Five transformers were replaced.

After the incident in 2016 with a broken piston in the RFQ all the tuner pistons and vacuum pumps on the RFQ were replaced, while the ones on Buncher 1-2 were checked OK. Within RF maintenance four amplifier tubes were replaced.

Motor for demineralized water pump was changed and variable-frequency drive was replaced with a new type, as the previous one was inducing unwanted fluctuations.

New power converter LT.BHZ20 was installed, however, the associated cabling was not done due to lack of manpower during EYETS.

One week was lost for installations due to delayed DMR procedure.

On February 15 there was a water leak in section 2 of tank 1. It flooded the linac. It was dried out with help of the fire brigade. However, the vacuum level is still worse now compared to the prior situation.

Question from B. Mikulec: Was there any alarm transferred to TI?

Answer: There was one, but there was a confusion in interpreting the readouts.

Comment from B. Mikulec: We need to follow this up, because the linac accelerating tanks are very sensitive to temperature fluctuations, so we cannot afford such incidents.

Comment from J. Nielsen: There was a general alarm on the cooling system of Linac2 at 19h50, which was investigated by a TI operator. There were 2 notes of electricity disconnection in this area, therefore it was concluded that it was the reason for stopping the water station. Following a detailed verification, it was found that station FTEF-00216 should not be affected. At 21h TI operator intervened in place. The first conclusion was that the station works correctly. It was found that sole alarm is on low coolant temperature. The 3-way valve that is used for the temperature regulation was at its maximum and therefore was not capable to regulate more. The facts that the power was cut before, the machine was off and low water temperature indicated too low heat charge. At 23h16 nothing abnormal was found, the water station was still working and the temperature was not changing since the beginning of the intervention. The piquet was contacted to inform him about the situation. Having the situation described and in agreement with TI the piquet judged that his intervention would not bring anything new. It's necessary to note that

1. There is no remote supervision for this installation so it is not possible to perform any real diagnostic on the historic values.
2. There are only 2 possible alarms on this station: general fault (high level) and station stop (low level)



3. The web page <http://scrivens.web.cern.ch/scrivens/Linac2/linac2surv.html> that previously was showing the temperatures now shows only the Vistar pages.

The actions that were defined by TIOC in the follow-up of the incident:

- The responsible of the equipment is advised to configure an automatic alarm (assigned to **D. Kuchler**)
- An additional alarm “number of refills is too frequent” will be added (assigned to **S. Deleval**)
- The instructions of *helpalarm TI* will be modified (assigned to **R. Ledru**)
- A responsible person for shut-down periods will be defined and communicated to TI (assigned to **D. Kuchler**)
- The origin of the leak was not found and will not be found (assigned to **S. Deleval**)
- Leak alarm available locally is requested and all alarms have been updated according to instructions from Linac2 super intendants (assigned to **J. Nielsen**)

Linac2 restart commenced on March 10

- Hardware permit signed.
- Quadrupole TANK is on.
- Completed tests of BENDING magnet current limit interlocks.
- LT BHZ 20 restarted and now locked by the DSO (EIS SWY).
- EPC restarted all power converters.
- March 16 DSO tests done, LI STP 1-2 locked by the DSO.

If beam permit is signed then the beam will be sent to L2 dump on March 23 and to PSB on April 10.

Linac3 underwent a normal maintenance (mainly vacuum equipment, RF and source). Additionally

- Two ITF SEM grids were modified.
- A pepper pot also is supposed to be modified, however, it was not yet done and there is no news on this item. A query was sent, but no answer until now.
- Airflow around vacuum control racks was modified.
- Operation of the source started on February 24.

The works had to be interrupted due to electric network maintenance (2d) and controls maintenance (0.5d). For the next year, could it be put forward before the start-up?

Answer by **M. Gourber-Pace**: This time it could not be avoided because security patches had to be installed in 2 steps.



Answer by **A. Bland**: It also needs to be negotiated with IT-DB. We try to fit as much as possible before the startup in order not to disturb, and in this case we could not avoid it.

Comment from **R. Scrivens**: For the machines operating from January, a 3h stop should not be a problem.

Question from **C. Mastrostefano** for **TI**: What is the way to find out if eventual electric perturbations are finished and we could commence hardware restart? At the moment we are in blind and it often happens that secondary cuts occur while hardware is already being restarted. There is a web service, but we are strongly discouraged to use it. The telephone number 72201 is giving an automatic message and not connecting to the TI operator.

Answer by J. Nielsen: If you call TCR at 72201 there is indeed an automatic voice message. However, after it is finished, a connection is made with an operator from whom you could get the information about the status. This was implemented to reduce the amount of incoming calls from all the affected users after an important power cut. And indeed it does the job to discourage users with minor requests.

PSB shutdown activities and analysis

D. Hay presented the shutdown activities in the PSB and the machine status ([Annex 3](#)). The works took 11.5 weeks and included:

- Preventative and Corrective Maintenance.
- Removal of obsolete cables (De-cabling Project)
- Cable installation for LIU and consolidation.
- Anticipation from LS2 of LIU Project activities.
- Consolidations and Upgrade installations.

One of the ERD electric distribution boxes was split into 2 ERDs.

In anticipation for LS2 BI.BVT10 racks were installed. All LIU cables were installed and 4432 old cables were removed. Cabling campaign was very successful.

Also within the LIU project the following items were successfully completed:

- Installation of 4 new BR.TMD monitors (8L1) Transformer interMeDiate.
- New prototype wire Scanner BWS (4L1) PSB-BWSRA-EC-0001 installed.
- Installation new kicker KSW (16L1) PSB-MKKSUW-EC-0001.
- Relocation of monitor BTV (BT.BTV30) PSB-LJ-EC-0003.
- Installation of new wideband pick-up on BTP line PSB-BPUWB-EC-0001.
- Enlargement of the shaft (BHZ10) PSB-K-EC-0003.
- Exchange of extraction septum SMH (15L1).
- Installation of new BLMs (FIC detectors) PSB-BLM-EC-0002.
- Installation of new ring Trajectory Measurement System electronics.



- Renovation of electronics for 4 BR.BCTDC (section 9).

The only item that was postponed to YETS 2017-2018 was the installation of 4 new tune pickups in 3L1 PSB-BPMTA-EC-0001. Installation of switchboard is delayed and is still ongoing. Alcove works are on schedule.

Comment from **B. Mikulec**: Concerning the status, there were 2 weeks delay due to the switchboard installation, and now there is a big on-going effort to catch up with the schedule, but it cannot be confirmed yet if the beam would start on time. Cables still must be checked to see if any more accidental cuts/damage occurred. It will be better defined in a week's time.

Comment from **B. Mikulec**: I would like to ask all the hardware groups who start the tests to carefully verify the status of the concerned installations and the zones to avoid any incidents by all means.

3. FOM Membership

B. Mikulec presented the current lists of FOM members ([Annex 4](#)) and machine supervisors ([Annex 5](#)). She asked to verify them and to inform **S. Dubourg** if any name should be added or removed.

4. Schedules

B. Mikulec presented the 2017 schedule for the injectors ([Annex 6](#)) and for the LHC ([Annex 7](#)). She noted that:

- PS will be closed on Apr 1.
- SPS is closing this week (Week 12).
- Recommissioning with beam will happen over the Easter weekend for PSB and PS.
- ISOLDE is scheduled to start their physics run April 24.
- The same day (April 24) beam shall be sent to SPS and its recommissioning with beam will start.
- On May 1 the commissioning of the LHC with beam as well as physics in EA, nTOF and AD will start.

Technical Stops:

1. The first TS is only for the injectors on June 30 and will take 24h.
2. The second Injector Technical stop (ITS2) is on July 6 and it is combined with a COLDEX run and the LHC TS1 from July 3 to 7. It will take 36h.



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3. ITS3 (36h) is on September 21 and it is combined with COLDEX and UA9 runs. The same week LHC TS2 will be from September 18 to 22.

The ion run will start in November, this year with Xenon. The NA physics run with protons will stop on October 23. High intensity proton physics (ISOLDE, nTOF, EA) will finish on November 20. End of the 2017 run is scheduled for December 18.

5. AOB

There will be two presentations in the FOM in 2 week's time:

1. PS shutdown activities and analysis by **S. Mataguez**.
2. SPS shutdown activities and analysis, presenter to be defined.

Next Meeting: 4th of April.

Minutes reported by P.K. Skowronski on 23rd of March.